



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/078,383 | 02/21/2002 | Bryan Bees | 027478-0102 | 5011 |
| 22428 | 7590 | 06/29/2005 | EXAMINER | |
| FOLEY AND LARDNER SUITE 500 3000 K STREET NW WASHINGTON, DC 20007 | | | SANDERS JR, JOHN R | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 3737 | |

DATE MAILED: 06/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|------------------------------------|--|
| Office Action Summary | Application No. 10/078,383 | Applicant(s) BEES, BRYAN | |
| | Examiner John R. Sanders | Art Unit 3737 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 and 25 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 and 25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some * c) ☐ None of:
 - 1. ☒ Certified copies of the priority documents have been received.
 - 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date 11182004.
- 4) ☐ Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 15 April 2005 have been fully considered but they are not persuasive.

Applicant notes that, in the rejection of claim 1 in the prior Office Action, that Examiner asserts that the eyeball 4 reads on the claimed "main objective" in the instant claim. Examiner feels further explanation is warranted.

The instant claim does not delimit a main objective *lens*, or any other specific component or element that can be considered a physical part of the claimed device. Thus, the Examiner must read the phrase "main objective" in its broadest reasonable interpretation. A main objective of an optical device can be read as the express intended use, goal, or function of said device, in this case to spectrally filter the light emitted by a light source prior to the light's incidence upon the objective. Though the "main objective" in the claim is recited after the preamble "[a]n optical device comprising," the broadest reasonable interpretation of the claim does not limit the "main objective" to an actual physical component of the device. Said "main objective" can be considered to be the object upon which the light is impinging. Such language is common in the art as exemplified by the fact that the lens closest to the "objective" of the device is commonly called the objective lens. Examiner appreciates that Applicant considered that Examiner may mean the objective lens 13 disclosed by Nyui to read on the instant claim. As currently written or in the event that the instant claim were amended to recite a definitive structural element, such as an objective lens (as supported in the Applicant's specification) objective lens 13 of Nyui would indeed read on claim 1.

Art Unit: 3737

With respect to Applicant's argument that the Nyui and Kerns references cannot be combined, Examiner respectfully disagrees. Applicant alleges that Nyui teaches a filter transmitting a constant amount of light in contrast to the filtering contact lens of Kerns that transmits a variable amount of light. However, *constant* and *variable* are not defined by Applicant with respect to a specific frame of reference. Given the transmissive characteristics of the filter of Nyui, it can be said that the light transmitted is variable with respect to the radius. Conversely, given a constant illumination source, the amount of light transmitted is constant with respect to time. Similarly, the lens of Kerns can be said to transmit a variable amount of light, as argued by Applicant. However, the characteristics of the lens itself do not contribute to this variation; rather the pupil of the eye, reacting to changes in the ambient light, dilates or contracts accordingly, changing the amount of light passed to the retina. The actual amount of light passing through the lens remains constant (at a constant ambient light level), the pupil acting as an aperture limiting the light passed to the retina to a central portion of the lens.

Therefore, to classify Nyui as teaching a constant filter and Kerns as teaching a variable filter to argue against combination is flawed. Furthermore, though Kerns is intended for use as a contact lens and therefore affects the light entering the eye with changes in pupil dilation, the spectral characteristics of Kerns are explicitly disclosed as relating to the reduction of certain harmful wavelengths of light incident upon the retina through a central region of the lens. The light through this region is unaffected by the dilation of the pupil.

Claim Rejections - 35 USC § 103

2. **Claims 1-19, 21-23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,810,804 to Nyui in view of Kerns, Jr., of record.**

3. Nyui clearly discloses an optical system with an illumination light system 1, a filter 20 that reduces light intensity in a specific subsection of the illumination beam, an objective 4, and a means 32 for moving the filter out of the observation path. Nyui does not disclose a spectral filter with the properties claimed in the instant invention.

4. Regarding claims 1-8, Kerns, Jr. teaches a spectral filter, in the form of a contact lens, with a plurality of radial regions each having a different transmission characteristic with regard to the wavelength and intensity of the incident light (abstract). Kerns, Jr. teaches a filter that absorbs portions of the light in different absorption regions, separated by flat absorption edges (FIGS. 5, 10). The purpose of the spectral filter of Kerns, Jr. is taught as a means of reducing the intensity of UV and blue light impinging upon the retina.

5. At the time of the invention, it would have been obvious to one of ordinary skill in the art to use the spectral qualities of a filter as taught by Kerns, Jr. to filter light incident upon the eye within an optical device used for projecting light onto the eye, such as Nyui, in order to reduce the intensity of UV and blue light impinging upon the retina.

6. Regarding claim 9, Kerns, Jr. does not expressly teach the blue light region being reduced by 90%. However, in column 6, lines 38-52, Kerns, Jr. teaches a wide range of transmission percentages for the range of 400-510 nm, indeed between 0 and 100%. It would have been

Art Unit: 3737

obvious to one of ordinary skill in the art to reduce the transmission of blue light to 90% to further reduce the possible negative effects associated within that range of the spectrum.

7. Regarding claims 10-13, Kerns, Jr. teaches filter regions in the center of the lens that reduce the blue light spectrum by 50% (FIG. 6). In embodiment variations, wavelengths of 400-500 nm are attenuated by 40-60% (FIGS. 8 and 9). Kerns, Jr. also teaches an outer region of the lens that is optically clear (column 3, lines 8-37).

8. Regarding claims 16-18, and 23-25, Nyui does not disclose axially and laterally aligning the filter with the eye in the x, y plane. However, it is common trade practice to have axially and laterally displaceable elements in an optical device, especially one relating to the eye. These elements are usually coupled to a control circuit incorporating an eye-tracking device. Their positions are altered based on the eye position data for purposes of aligning the effect of the device (retinal photography, laser surgery, keratotomy, etc.) and data collection (wavefront sensors, image detectors) to the proper location of the eye. It would have been obvious to one of ordinary skill in the art to move the filter; first, axially to alter the perceived size of the filtered light to match the pupil size of the eye (see Kerns, Jr., col. 3: 10-14); second, laterally to align the filter regions with the axis of the eye. This is automatically accomplished in Kerns, Jr. by the contact lens being in contact with the cornea.

9. Regarding claim 19, a movable filter is inherently movable either electronically or manually.

10. Regarding claim 21, Nyui in view of Kerns, Jr. does not teach the filter as a thin film, LCD or electrochromic film. However, these are all filter types that are commonly used in the

Art Unit: 3737

art and, at the time of the invention, would have been obvious to an artisan of ordinary skill as means of reproduce the spectral characteristics taught by Kerns, Jr. for use in an optical device.

11. Regarding claim 22, Nyui does not disclose a surgical microscope. However, surgical microscopes are known optical devices in the art for projecting light onto the eye. At the time of the invention, it would have been obvious to one of ordinary skill in the art to apply the spectral properties of the filter disclosed by Kerns, Jr. to a filter in a surgical microscope in order to reducing the intensity of UV and blue light impinging upon the retina.

12. **Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nyui in view of Kerns, Jr., and further in view of Dobrowolski et al., of record.**

13. Nyui in view of Kerns, Jr. discloses the above limitations but do not expressly discloses having the x, y plane of the filter disposed non-normal to the beam. Dobrowolski teaches the use of filters at oblique angles to the beam axis used to filter the beam at predetermined wavelengths. It is also known in the art that changing the filter angle will alter the intensity transmittance properties of the filter, since the beam has to travel at an oblique angle through the filter media. It would have been obvious to one of ordinary skill in the art to dispose a filter with the spectral properties taught by Kerns, Jr. to be non-normal to the incident light in order to alter the transmittance properties of the filter, as in Dobrowolski.

Remarks

14. It is well known in the art (see cited art Stephens et al. '046 and Johansen et al. '748) that the range of the electromagnetic spectrum associated with UV and blue light has been implicated

Art Unit: 3737

as a cause of macular degeneration, as well as other medical conditions. It is also known in the art to filter light within an optical device in general, not necessarily devices in the medical art.

Any device having a light source, a filter, and an objective constitutes an "optical device" within the scope of the independent claim.

15. Kerns, Jr. discloses a filter with certain characteristics. It is commonly known to use filters in optical devices. The specific spectral qualities of the filter disclosed by Kerns, Jr. are expressly disclosed as relating to the reduction of certain harmful wavelengths of light incident upon the retina. Therefore it is obvious to use a filter with the spectral characteristics taught by Kerns, Jr. in an optical device designed to project light onto the eye.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John R. Sanders whose telephone number is (571) 272-4742.

The examiner can normally be reached on M-F 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian L. Casler can be reached on (571) 272-4956. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 3737

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



June 25, 2005



BRIAN L. CASLER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700